

### REMARKS

Claims 1-3, 17-21 and 35-37 are pending in this application. Each of the pending claims defines an invention that is novel and unobvious over the cited art. Favorable consideration of this case is respectfully requested.

#### *Rejection Under 35 U.S.C. § 102(e)*

Claims 1-3 and 17-21 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Elenius et al. (US 6,441,487). Applicants respectfully traverse.

Applicants note that anticipation requires the disclosure, in a prior art reference, of each and every recitation as set forth in the claims.<sup>1</sup> There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. § 102.<sup>2</sup> To properly anticipate a claim, the reference must teach every element of the claim.<sup>3</sup> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference".<sup>4</sup> "The identical invention must be shown in as complete detail as is contained in the ...claim."<sup>5</sup> In determining anticipation, no claim limitation may be ignored.<sup>6</sup>

Regarding claims 1 and 17, the Examiner cites Elenius figures 1 and 2 as showing an electronic package comprising a dielectric substrate 22 having a major surface (top surface) and a conductive foil 30 having a smooth portion laminated to the dielectric substrate 22 major surface. The Applicants respectfully note that the Examiner bases the rejection on two, mutually incompatible, definitions of the term "substrate." At Point 4, the Examiner cites Elenius as showing "an electronic package comprising: a dielectric packaging substrate 22 having a major surface (top surface)." However, at Point 7, the Examiner cites Elenius as showing "an electronic package comprising: a semiconductor package substrate 12 having a major surface: a first mechanically compliant dielectric layer 22 formed over the major surface of the substrate." Note that the Examiner defines layer 22 as being the substrate at Point 4, but he defines layer 12 as being the substrate at Point 7.

In responding to Applicant's arguments, the Examiner reminds us that arguments of counsel

<sup>1</sup> *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985).

<sup>2</sup> *Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

<sup>3</sup> See MPEP § 2131.

<sup>4</sup> *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

<sup>5</sup> *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

<sup>6</sup> *Pac-Tex, Inc. v. Amerace Corp.*, 14 USPQ2d 187 (Fed. Cir. 1990).

cannot take the place of factually supported objective evidence. The Examiner's point is well taken. The Federal Circuit teaches that when interpreting claim language one "should look first to the intrinsic evidence, or in other words 'the written description'."<sup>7</sup> In the following arguments, counsel advances objective evidence as provided in the specification as filed. Applicants note that the originally-filed specification provided a definition of "substrate." Discussing a conventional BGA package, the specification taught that the

package base includes a substrate made of an electrically insulating material such as alumina ceramic and a number of connection terminals or bumps formed on a main surface of the substrate. Each connection terminal includes a solder ball bonded to a bonding pad by way of a mass of solder. The bonding pad is formed on a main surface of a substrate by a predetermined plating process. (Page 2, lines 10-14).

The definition of "substrate," set forth by the Examiner at Point 7 is consistent with the Applicant's definition. The definition set forth in Examiner's Point 4 is not consistent with the definition of Examiner's Point 7, nor is it consistent with Applicant's definition. Note that the conductive pads 18 of Elenius (col. 6, line 18) are provided on a major surface of substrate 12, but not on passivation layer (not substrate) 22 (see Fig 2). Objectively, Elenius and Applicant define "substrate" consistently. The Examiner's definition of "substrate" in Point 4 is not consistent with either Elenius' or Applicant's definition.

Applicants traverse on the ground that element 22 in Elenius is not a "packaging substrate." Instead, element 22 of Elenius is a "wafer passivation layer."<sup>8</sup> The wafer passivation layer is described as "applied over the front surface of semiconductor wafer 14."<sup>9</sup> These elements are shown in figure 2 of Elenius. The wafer passivation layer 22 therefore cannot correspond to the "dielectric packaging substrate" recited in claim 1, or to the "semiconductor packaging substrate" recited in claim 17.

Elenius therefore fails to disclose the combination of elements recited in either of claims 1 or 17, and the rejection under 35 U.S.C. § 102(e) should be withdrawn.

***Rejection Under 35 U.S.C. § 103(a)***

Claims 35-37 stand rejected under 35 U.S.C. § 103(a) as being obvious over Elenius et al. in view of Gotoh (US 6,204,454). Applicants respectfully traverse.

<sup>7</sup> *Allen Engineering Corp. v. Bartell Indust., Inc.*, 299 F.3d 1336, 1344 (Fed. Cir. 2002).

<sup>8</sup> See lines 20-22 of column 6 of Elenius.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations.<sup>10</sup> Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.<sup>11</sup>

In view of the teachings of the specification, it is clear that the cited art does not teach laminating a smooth surface of a conductive foil to a major surface of a "packaging substrate."

The Examiner cites Gotoh as teaching an embodiment that "improves the electrical connection stability." (See Point 14). The teaching cited by the Examiner is in direct contrast to the teaching of the present invention. The present invention teaches enhancing BGA life by "reducing the adhesion of the BGA pad to the laminate." (Page 3, line20-22). Teaching away from the invention is a *per se* demonstration of nonobviousness.<sup>12</sup>

#### Conclusion

In light of the above remarks, independent claims 1 and 17 define over the patents cited by the Examiner. The dependent claims are allowable due to their dependence upon an allowable independent claim, and for further patentable features recited therein. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass the application to issue.

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<sup>9</sup> *Id.*

<sup>10</sup> See MPEP §2143.

<sup>11</sup> *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

<sup>12</sup> *U.S. v. Adams*, 338 U.S.39, 148 U.S.P.Q. 479 (1966).

The Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185.

Respectfully submitted,

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